within a host plant cell.

REMARKS

Applicants believe no new matter is added by these amendments to the specification and claims. .

Amendments to the specification.

The amendment of the paragraph at page 1, line 26, indicates a research agreement between Monsanto Company and the present assignee, Mendel Biotechnology, Inc. The previous amendment had identified the former as "Monsanto Corporation".

Amendments to the claims.

Claims 1-21 are canceled. Claims 22, 25, 27, 30, 32, 36-37 are presently amended. New claims 43-44 are added by this amendment. After entry of this amendment, Claims 22-44 will remain in this application.

Response to claim objections, double patenting and rejections.

Item 5. Claim objections.

Claims 22, 27, 32 and 37 have been amended by incorporating the claim element --the AT-hook transcription factor polypeptide comprises a conserved domain that is at least 65% identical in its amino acid sequence to amino acids 106-201 of SEQ ID NO: 14--. Dependent claims 25, 30, 36 and 41, which comprise the claim element of conserved domains at least 71% identical to amino acids 106-201 of SEQ ID NO: 14, are thus more limited than their respective independent claims.

The Office action also acknowledges that "Claims 25, 30, 36, and 41 appear to be free of the prior art" (page 10, item 16), indicating that previous claims 25, 30, 36 and 41 were more limited than their respective independent claims, the latter deemed to be anticipated or obvious in light of the prior art.

Accordingly, Applicant believes that the present objections to claims 25, 30, 36 and 41 have been overcome.

Item 7. Obvious-type double patenting with respect to U.S. Patent No. 6,717,034

A terminal disclaimer is attached which Applicant believes overcomes the double patenting rejection. Accordingly, Applicant respectfully requests that this rejection be withdrawn.

Item 8. Provisional obvious-type double patenting with respect to Application No. 10/870,198

A terminal disclaimer is attached which Applicant believes overcomes the provisional double patenting rejection. Accordingly, Applicant respectfully requests that this rejection be withdrawn.

Item 9. Provisional double patenting with respect to Application No. 11/435,388

As Applicant has not yet responded to the restriction requirement or elected polynucleotide or polypeptide inventions for Application No. 11/435,388, Applicant will address this rejection at a later date if the elected sequences for Application No. 11/435,388 are, in the opinion of the Examiner, sufficiently similar to the present SEQ ID NOs. 13 and 14 to maintain this rejection.

Item 11. Rejection under 35 USC 112, first paragraph, written description

The presently amended independent claims comprise the element of a conserved domain that is at least *65%* identical to amino acids 106-201 of SEQ ID NO: 14. On page 28, Table 1, row "14…G3456" lists the "% ID to Second Conserved Domain of G1073" as "65%". Support for "65%" and "71%" identity for a conserved domain of the invention may also be found on, for example, page 14, line 33, page 36, lines 19-20 and 30-31. Accordingly, Applicant respectfully requests that this rejection be withdrawn.

Item 12. Rejection under 35 USC 112, first paragraph, written description

The present Office action indicates that "what Applicants describe as "a second conserved domain" appears to be artificial and does not describe a structural and functional genus" (page 7, ¶2) and "there is not described or art-recognized correlation or relationship between the structure of the invention and its function" (page 8, ¶1).

The breadth encompassed by presently amended independent claims is determined by hybridization to the G3456 DNA, SEQ ID NO: 13, under defined stringent conditions which are at least as stringent as 6x SSC at 65° C. Applicant notes that the USPTO's own "Synopsis of application of written description guidelines" provides, in "Example 9", a case in which a "specification discloses a single cDNA (SEQ ID NO: 1) which encodes a protein [with a defined function]" and "an example wherein the complement of SEQ ID NO: 1 was used under highly stringent conditions (6XSSC and 65 degrees Celsius) for the isolation of nucleic acids that encode proteins that [confer the same function]. The hybridizing nucleic acids were not sequenced. They were expressed and several were shown to encode proteins that [confer the same function]. And, "[t]he claimed invention is adequately described". This is a similar situation to what Applicants have described, although Applicant disclosed several sequences that fall within the scope of the present claims, and Applicant confirmed that a very high percentage of the sequences tested do function as predicted (the one sequence that has not yet been shown

to function has not yet been fully tested in plants, as noted in the attached declaration).

G1073 and the sequences listed in Table 1 of the attached declaration by Dr. Ratcliffe are predicted to hybridize with the G3456 DNA sequence under even the most stringent conditions claimed, as shown in attached Exhibit C. Thus, Applicant believes that the present claims have already met the standard indicated by the Guidelines, as noted above, based on the hybridization element of the claims.

Applicant also described and claims an additional claim limitation of a "second conserved domain" (the AT-hook domain is the "first" conserved domain) at least 65% identical in its amino acid sequence to amino acids 106-201 of SEQ ID NO: 14. See, for example, the second conserved domains spanning Figures 5E through 5G for a number of homologs closely-related to G3456, SEQ ID NO: 14. Where this element appears in the independent claims, this element further limits the encompassed sequences beyond the limitations imposed by the hybridization language.

With regard to the second conserved domains of G3456-related proteins and their relationship to the function of the encompassed proteins, the Enzo court (Enzo Biochem, Inc. v. Gen-Probe Inc., 296 F.3d 1316, 63 USPQ2d 1609 (Fed. Cir. 2002)) adopted the standard that "the written description requirement can be met by 'showing that an invention is complete by disclosure of sufficiently detailed, relevant identifying characteristics . . . i.e., complete *or partial structure*, other physical and/or chemical properties, functional characteristics when coupled with a known or *disclosed correlation between function and structure*, or some combination of such characteristics.'" Id. at 1324, 63 USPQ2d at 1613 (*emphasis* added)

As to function of these sequences, please see the attached declaration by Dr. Ratcliffe, which shows that five of six sequences encompassed by the present claims and tested in plants have conferred the traits of increased water deficit tolerance (the sixth has not yet been tested in soil drought assays). G1073, SEQ ID NO: 2, has also shown its ability to make plants more tolerant to water deficit, (e.g., see Figures 8A and 8B of the present specification). On page 61, lines 11-12, Applicant also disclosed that *Arabidopsis* plants transformed with G1073, G2153, G3456, G3459, G3460 (SEQ ID NOs: 2, 6, 14, 16, and 18, respectively) became larger than controls. G2153 was also tested in tomato plants, and "[t]omato plants overexpressing the *A. thaliana* G2153 polypeptide have been found to be larger and produce more fruit than wild-type control tomato plants" (page 61, lines 17-18). Applicant's patent application 10/870,198 (e.g., on page 60, lines 23 of the 10/870,198 specification) also shows that G3401, SEQ ID NO: 38 of the present specification, can be used to make larger plants. Applicant described how candidate paralogous and orthologous sequences were identified among *Arabidopsis* transcription factors through alignment, identity, and phylogenic relationships, and for orthologs, using reciprocal comparisons (e.g.,

page 96, lines 5-14).The tested sequences derive from diverse plant species including eudicots and, in the case of G3401, a monocot. Thus, nature has preserved both the structure of the second conserved domain and the functions of sequences that possess this domain and that were found using Applicant's description.

Thus, there is a very high correlation between sequences comprise the claimed structure and that function or are expected to function as claimed. The declaration by Dr. Ratcliffe shows that five of six sequences tested do, in fact, perform the claimed function by conferring greater tolerance to water deficit, and five of six plants tested also confer increased plant biomass (again, the six sequence, G3457, has not yet been fully tested). Including G1073, SEQ ID NO: 2, six of seven sequences that are encompassed by the present claims have been shown to confer the claimed functions, thus establishing a strong *disclosed correlation between function and structure.*

Accordingly, Applicant respectfully requests that this rejection be withdrawn.

Item 15. Rejection under 35 USC 102/103

The presently amended claims include the claim element of a polypeptide that comprises a conserved domain that is at least 65% identical to amino acids 106-201 of SEQ ID NO: 14.

An alignment* of the Weigel sequence and amino acids 106-201 of SEQ ID NO: 14 shows that the two subsequences are, in fact, only 61.9% identical in their amino acid residues. Thus, the Weigel reference, lacking the claimed second conserved domain, does not anticipate the present claims and should not be combined with another reference to form the basis of an obviousness rejection.

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*Alignment of G3456 and G1067 (Escarola) second conserved domains
Identities = 65/105 (61.9%)

G3456:     VAQFARRRQRGVSILSGSGTVVNVNLRQPTAPG---------AVMALHGRFDILSLTGSF
           V   ARRR RGVS L G GTV NV LRQP  PG          V  LHGRF ILSLTG
G1067:     VSTYARRRGRGVSVLGGNGTVSNVTLRQPVTPGNGGGVSGGGGVVTLHGRFEILSLTGTV

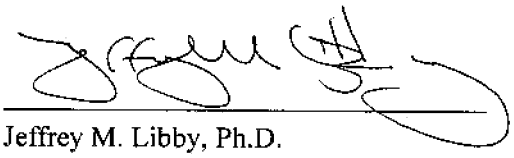
G3456:     LPGPSPPGATGLTIYLAGGQGQIVGGEVVGPLVAAGPVLVMAATF
           LP P PPGA GL I LAGGQGQ VGG VV PL A  PV  MAA F
G1067:     LPPPAPPGAGGLSIFLAGGQGQVVGGSVVAPLIASAPVILMAASF
```

Accordingly, Applicant respectfully requests that this rejection be withdrawn.

CONCLUSION

Applicants believe that no additional fee is due with this communication. However, if the USPTO determines that a fee is due, the Commissioner is hereby authorized to charge Mendel Biotechnology, Inc. Deposit Account No. **50-1025.**

Respectfully submitted,
MENDEL BIOTECHNOLOGY, INC.



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Jeffrey M. Libby, Ph.D.
Reg. No. 48,251

21375 Cabot Boulevard
Hayward, California 94545
Phone: (510) 259-6138
Fax: (510) 264-0254
File: MBI-0034CIP.ROA.doc